Kushal P Mahidhar

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Education

UNIVERSITY OF MARYLAND

· Master of Engineering · Robotics Engineering MAY 2020

UNIVERSITY OF MUMBAI

· Bachelor of Engineering · Electronics Engineering MAY 2016

Skills

- C/C++, Python, Bash, Ansible Playbooks, PLC Programming for S7 and Allen Bradley, Cognex
- AWS ML Services, AWS IoT Services, AWS Security and user management, AWS Compute, AWS S3, AWS Dev Tools, AWS DBs, AWS Monitoring, Apptio Cloudability
- Linux, ROS, ROS2, Serverless, Terraform, Jenkins, Gitlab CI, TensorFlow, OpenCV, PCL, Rviz, Gazebo, Moveit, NVIDIA Isaac Sim, NVIDIA Isaac Gym, Scan-N-Plan, CAD, LaTex, Docker,

Technical Experience

SR. ROBOTICS ENGINEER, EMERGING TECH | TYSON FOODS INC OCT 2020- PRESENT

- Evaluated IIoT systems to be deployed in the plant and designed an IIoT architecture to be implemented for a pilot project
- Deployed CV/ML-based solution using AWS Panorama to measure throughput in prepared foods production unit, resulting in reduced rework and estimated savings of $75,000 a week.
- Deployed CV/ML-based solution using AWS Panorama to optically grade cooked chicken nuggets and patty for defects. The monitoring process allowed upstream process optimization, reducing defects and increasing throughput
- Deployed CV/ML-based solution using AWS Panorama to accurately calculate rework in traypack lines, resulting in an estimated saving of $80,000 a month.
- Deployed CV/ML-based solution using AWS Panorama to ensure the correct number of nuggets in each McDonalds nugget packet
- Worked with AWS Panorama team to beta test, enhance features, resolve bugs while developing above PoCs , co-write blogs for Panorama, AWS featuring the above POCs in AWS re:Invent 2021
- Developing an automated data collection solution for non-contact temperature measuring of cooked products for USDA compliance using FLIR IR and FANUC serial manipulator, reworked to design a low-cost alternative.
- Developing an ML solution for non-contact temperature measuring of cooked products using PINNs
- Developing robotics solution to rehang whole birds with potential annual savings of $430K and improving
- Introduced Open-source tools (ROS, ROS-I) for developing robotics projects and standardized processes and infrastructure for robotics projects
- Ideate and evaluate AR/VR for dashboarding, robotics operator training, maintenance training
- Ideate and evaluate FOD detection in meat packages, which is the most prominent reason for recalls in meat processing
- Ideate and evaluate the use of ROS for robotics operations
- Ideate and evaluate ML solutions for monitoring breeding activity in chickens
- Implement Oloid M-tag and facial recognition system for user auth, access control, and time clocking
- Conducting tech evaluation of Robotics/Automation/AI/ML companies for Tyson Ventures to assist them in their investment
- Mentoring eight interns in their summer projects at Tyson
- Customizing Ubuntu OS for use as a standard development machine at Tyson

- Automating operational processes and housekeeping tasks
- Evaluating generative AI TTV platforms for training video generation
- Developing generative AI solution to assist procurement and legal team in contract evaluation
- Co-developing SOP for software development for PoCs
- Reporting ELT on the use of Emerging Technology at Tyson

PROCESS AUTOMATION INTERN | PSG JUL 2020 - OCT 2020

- Conducting feasibility study for automated point of sale system and developing Amazon Go style Grab and Go checkout systems using computer vision and machine learning.
- Deploying machine monitoring system for a jewelry manufacturing company resulting in a 16% increase in operating effiency

ENGINEERING INTERN | TULIP INTERFACES MAY 2019 - AUG 2019

- Designing and deploying machine monitoring system for a biomedical manufacturing company with 230+ CNC manchines/robotic manipulators and 2000+ parameters
- Deploying machine monitoring system for a jewelry manufacturing company resulting in a 16% increase in operating effiency
- Integrating new sensors/automation systems with Tulip platform
- Assist in designing Gen. 2 Edge gateway
- Write support articles for knowledge base and company blogs; training partner employees and client employees
- Conducting market research and customer survey to advice management in quarterly and semi-annual development plans

AUTOMATION AND IIOT SYSTEMS ENGINEER | EVIO PVT. LTD SEP 2017 - MAY 2018

- Conceptualizing and developing an automation system using Siemens S7 PLC and SCADA for clients in domain of water treatment, waste water treatment, chemical processing and tyre manufacturing
- Assist in business development of new IIOT business vertical
- Designing and deploying IIoT system for monitoring a textile spinning mill with over 2500 I/Os and to monitor the performance of a ship

COMPUTER FORENSICS EXAMINER | SASHI ENTERPRISES JUNE 2016 – AUG 2017
TRAINEE MAINTAINANCE ENGINEER | LARSEN AND TOUBRO DEC 2015 – JAN 2016

Independent Projects

UNMANNED UNDERGROUND RAIL FREIGHT TRANSPORT SYSTEM 2016- PRESENT

- Patent No: 292431; Registered in India
- Working on developing automatic loading and unloading system

ARIAC 2016 CHALLENGE

- Writing subscriber to get order data and parts information from the camera, using TF package to transform part position from camera frame to world frame
- Using moveit library to plan and execute the path of the robot, using the GEAR interface package to control the arm and EF

IOT- MACHINE MONITORING SYSTEM

- Develop a IoT client system to monitor data from MODBUS TCP and OPC enabled devices using pymodbus library and Kepware

FARMING ROBOT

- Conceptualized a farming robot inspired from Farm.bot. Improvised the design to enable multilayered farming
- Designed, modeled and simulated the farming bot for rooftop vertical farming